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### Knowledge management styles and performance: a knowledge space model from both theoretical and empirical perspectives

Maen Al-Hawari

*University of Wollongong*, [uow@al-hawari.edu.au](mailto:uow@al-hawari.edu.au)

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**Knowledge Management Styles and Performance: a  
Knowledge Space Model from both Theoretical and  
Empirical Perspectives**

**A thesis submitted in fulfilment of the  
requirements for the award of the degree of**

**DOCTOR OF PHILOSOPHY**

**from**

**THE UNIVERSITY OF WOLLONGONG**

**by**

**MAEN AL-HAWARI**

**MIS  
High. Dip IS  
BSc**

**INFORMATION SYSTEMS**

**2004**

## **CERTIFICATION**

I, Maen Al-hawari, declare that this dissertation, submitted in fulfilment of the requirements for the award of Doctor of Philosophy in Information Systems, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Maen Al-hawari

August 2004

## **ABSTRACT**

This thesis describes post-positivist research in the field of information systems, more specifically, in knowledge management. For company managers, deploying large-scale information systems such as knowledge management systems, the selection of an appropriate style for knowledge management initiatives are recognised as a dilemma. The study aims at helping to improve information systems applications for knowledge management in complex, technology-oriented organisations. The research addresses this dilemma by studying the relationships between organisational performance, knowledge availability, knowledge codification, knowledge application and knowledge management styles.

From an extensive study of the literature, an innovative knowledge space (K-space) model of organisational knowledge is developed as the first stage of the research. This leads to the identification of four knowledge management styles and a framework that relates these styles to knowledge creation and improved organisational performance.

The K-space model is adapted from the I-space framework (Boisot, 1995, 1998) with its three dimensions of diffusion, codification and abstraction, to bring into play three corresponding knowledge dimensions of availability, codification, and application. Knowledge is viewed as an object in K-space so that knowledge processes are forces that act to move the knowledge objects within the three dimensions of K-space. The four traditional knowledge conversion processes of Nonaka and Takeuchi, (1995) socialisation, combination, internalisation and externalisation (SECI), map onto two-dimensional planes in K-space. Taking advantage of the three dimensions of K-space, four new dynamic knowledge conversion process are identified, namely Adoption, Standardisation, Systemisation and Articulation. These are used to define the four knowledge management styles.

The research framework suggests that knowledge creation, in terms of knowledge availability and codifiability, mediates the relationship between the four knowledge management styles and organisational performance. In addition knowledge application moderates the relationship between these knowledge creation processes. A set of hypotheses is generated from the framework and a survey instrument constructed to empirically test the hypotheses.

A pilot study involving 45 managers was used to check the reliability and validity of the constructs in the questionnaire. The resulting questionnaire was mailed to 338 organisations around Australia in different industries. Confirmatory analyses were used to check the constructs and multiple linear regression, simple linear regression and MANOVA analysis were used to test the set of hypotheses.

The results confirm that an organisation can improve its performance through better management of its knowledge capabilities. There is a particular benefit of deploying a balanced of knowledge management styles combining the human and technology perspectives. Knowledge management styles are shown to contribute positively to both knowledge codification and availability. Knowledge applicability is confirmed as a moderator factor between knowledge availability, as well as knowledge codification, and organisational performance. Using a MANOVA analysis, the four knowledge management styles are found to be deployed in significantly different ways by organisations in different industry types.

The findings demonstrate that the K-space model provides the basis for a new way of conceptualising knowledge creation processes within organisations. They underline the importance of continuing research that adds to the understanding of knowledge management capabilities in an organisation. Therefore, this study makes a significant

contribution to a burgeoning topic that is of increasing importance to both the academic literature and the organisational practice of knowledge management.

## PUBLICATION FROM THE RESEARCH

The following papers and publications have been produced from the research reported in this thesis.

1. Al-hawari, M., and Hasan, H. (2004). Knowledge Creation Processes as Management styles for Organisational Performance. *Proceeding of CISTM Conference. Transforming Business Performance through Knowledge Management. Alexandria, Egypt, 2004*
2. Al-hawari, M., and Hasan, H. (2004). Organisational Culture and Knowledge Creation Processes. *Proceeding of the 2004 International Business Information Management Conference. Amman, Jordan, 2004*
3. Al-hawari, M., and Hasan, H. (2004). Knowledge Creation Processes and the Effect of the Culture. *Accepted for the Fourth International Conference on Knowledge, Culture and Change in Organisations. University of Greenwich , London, 2004*
4. Al-hawari, M., and Hasan, H (2004). Knowledge Management Styles and Organisational Performance: An empirical study in a K-Space Framework. *Journal of Information and Knowledge Management (JIKM). Submitted*
5. Al-hawari, M., and Hasan, H (2004). An integrated Framework for the Study of Knowledge Management: An Exploratory Study. *Unpublished manuscript. Wollongong, Australia: University of Wollongong.*
6. Al-hawari, M., and Hasan, H. (2004). The Importance of the Four Knowledge Management Styles to the industry: Using HSD. Post Hoc Test. *Unpublished manuscript. Wollongong, Australia: University of Wollongong.*
7. Hasan H., Al-hawari M. (2003). Management styles and performance: A Knowledge Space Framework. *Journal of Knowledge Management*, Vol. 7 No. 4, pp. 15-28
8. Al-hawari, M., and Hasan, H. (2002). Evaluating the Knowledge Assets of Innovative Companies. *Australian Journal of Information Systems*, Vol. 10 No. 1, pp.88-99
9. Al-hawari, M., and Hasan, H. (2002). Evaluating the Knowledge Assets of Innovative Companies. *Proceeding of SME in global economy conference Wollongong university, Australia*
10. Al-hawari, M. (2002). The Development and Evaluation of a K-Space Framework for the Study of Knowledge Management. *PhD Proposal Presented in Consortium Doctoral day at ACIS 2002, and Published in the Proceedings of the Conference, Melbourne, Australia.*



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## TABLE OF CONTENTS

<b>Certification</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iii</b>
<b>Publication from the Research</b> .....	<b>vi</b>
<b>Acknowledgements</b> .....	<b>vii</b>
<b>List of Tables</b> .....	<b>xv</b>
<b>List of Figures</b> .....	<b>xviii</b>
<b>Acronyms</b> .....	<b>xix</b>
<b>CHAPTER 1 INTRODUCTION</b> .....	<b>1</b>
1.1 Aims and Motivation for the Research.....	1
1.2 Historical Glimpse of Knowledge Management (KM) .....	4
1.3 Significant Aspects of Knowledge Management .....	9
1.3.1 Knowledge Management and Organisational Performance .....	9
1.3.2 Knowledge Creation .....	9
1.3.3 Effectiveness of Knowledge Diffusion and Availability .....	10
1.3.4 Knowledge Codification .....	11
1.3.5 Organisational Performance: Knowledge Codification and Knowledge Availability .....	12
1.4 Statement of the Problem.....	13
1.5 The Research Questions and Approach .....	16
1.6 The Research Design .....	17
1.7 Practical and Theoretical Value of This Research.....	18
1.8 An Overview of the Thesis .....	19
<b>CHAPTER 2. THE LITERATURE REVIEW</b> .....	<b>20</b>
2.1 Introduction.....	20
2.2 Definitions of Knowledge.....	21
2.3 Defining Management .....	22
2.4 Knowledge Management Definitions .....	23
2.5 Knowledge Codification, Diffusion and Application .....	26
2.6 Knowledge Management Schools .....	31
2.6.1 Technocratic .....	31
2.6.2 Commercial or Economic School .....	33
2.6.3 Behavioural School .....	34
2.7 The Five Knowledge Enabler Cycles .....	37

2.7.1 Instil Knowledge Vision Cycle (IKVC).....	38
2.7.2 Manage Conversation Cycle (MCC).....	41
2.7.3 Mobilise Knowledge Activist Cycle (MKAC).....	42
2.7.4 Create the Right Context Cycle (CRCC) .....	45
2.7.5 Globalise Local Knowledge Cycle (GLKC) .....	48
2.8 Knowledge Creation .....	48
2.8.1 Socialisation .....	49
2.8.2 Externalisation.....	50
2.8.3 Combination .....	51
2.8.4 Internalisation.....	51
2.9 I-Space, i.e. Information Space.....	54
2.10 Economic Value and I-Space.....	55
2.11 The Implementation of I-Space .....	56
2.12 Knowledge Management Styles .....	58
2.13 Chapter Summary .....	60
 <b>CHAPTER 3. DEVELOPMENT OF THE K-SPACE MODEL AND RESEARCH HYPOTHESES</b> .....	 61
3.1 Introduction.....	61
3.2 K-Space (Knowledge Space).....	61
3.3 Knowledge Classification for K-Space .....	63
3.4 The SECI Modes Location in K-Space .....	66
3.4.1 Socialisation .....	66
3.4.2 Externalisation.....	66
3.4.3 Combination .....	67
3.4.4 Internalisation.....	67
3.5 Knowledge as an Object in K-Space .....	68
3.6 Knowledge Conversion within the K-Space.....	69
3.6.1 Adoption.....	69
3.6.2 Standardisation .....	70
3.6.3 Systemisation .....	71
3.6.4 Articulation.....	72

3.7 The Four Forces and Knowledge Management Styles .....	73
3.8 KM Styles and Knowledge Creation .....	74
3.9 Knowledge Availability and Organisational Performance .....	75
3.10 Knowledge Codification and Organisational Performance .....	76
3.11 Knowledge Application and Organisational Performance .....	77
3.12 The Research Integrative Framework.....	78
3.13 Knowledge Management Styles vs. Organisational Performance: A direct Relationship .....	79
3.13.1 Unbalanced Knowledge Management Styles vs. Organisational Performance .....	79
3.13.2 The Balance of Knowledge Management Styles Vs. Organisational Performance .....	79
3.14 Research Questions and hypotheses .....	80
3.15 The hypotheses of the Study.....	81
3.16 Chapter Summary .....	82
 <b>CHAPTER 4. The Methodology used for the Empirical Research.....</b>	<b>84</b>
4.1 Introduction.....	84
4.2 The Theoretical Paradigm.....	84
4.3 Quantitative Methodology .....	86
4.4 Conceptualisation, Operationalisation and Measures.....	86
4.5 Data Collection .....	88
4.6 Sampling Strategy.....	90
4.6.1 Cochran's Formula .....	91
4.6.2 Sample Size Determination .....	91
4.6.3 Population Size.....	92
4.7 Mail Survey .....	94
4.8 Ethical Considerations in the Study.....	96
4.9 Administration of the Mail Survey .....	96
4.10 Chapter Summary .....	97

<b>CHAPTER 5. IDENTIFICATION OF CONCEPTS AND MEASURES LEADING TO THE DEVELOPMENT OF THE QUESTIONNAIRE.....</b>	<b>98</b>
5.1 Introduction.....	98
5.2 Questionnaire Development .....	99
5.3 Positive and Negative Wording .....	101
5.4 The Four Knowledge Management Styles and Knowledge Elements .....	102
5.4.1 Descriptions of Knowledge Elements .....	102
5.5 Knowledge Availability .....	107
5.6 Knowledge Codifiability .....	109
5.7 Knowledge Applicability .....	110
5.8 Absorptive Capacity .....	112
5.9 Organisational Performance .....	113
5.10 Style Dispersion.....	114
5.11 Constructs and the Items.....	115
5.12 The Scale Development.....	120
5.13 Chapter Summary .....	121
 <b>CHAPTER 6. THE PILOT STUDY .....</b>	 <b>122</b>
6.1 Introduction.....	122
6.2 The Planning Stage .....	125
6.3 Design Stage .....	126
6.4 Conduct Stage.....	127
6.5 Evaluation Stage .....	128
6.6 Descriptive Statistics .....	130
6.7 Scale Reliabilities .....	131
6.8 Scale Validity.....	136
6.9 Cluster Analysis.....	137
6.10 Limitations .....	139
6.11 Use Stage .....	139
6.12 Chapter Summary .....	140

<b>CHAPTER 7. SURVEY DATA ANALYSIS .....</b>	<b>141</b>
7.1 Preparation of the Survey Data for Statistical Analysis .....	141
7.2 Descriptive Statistic .....	142
7.2.1 Respondent Characteristics in Terms of Main Industry, Revenue and Employees' Numbers .....	144
7.2.2 Demographic of Study Sample .....	146
7.3 Validity of the Scales.....	147
7.3.1 Knowledge Applicability .....	147
7.3.2 Organisational Performance .....	149
7.3.3 Knowledge Availability .....	149
7.3.4 Knowledge Management Styles.....	150
7.4 Inter-rater Reliability .....	153
7.5 Internal Reliability .....	154
7.6 Non–Response Error Test.....	155
7.7 Chapter Summary .....	157
 <b>CHAPTER 8. SURVEY FINDINGS: TESTING THE THEORETICAL HYPOTHESES .....</b>	 <b>158</b>
8.1 Introduction.....	158
8.2 Hypotheses Testing.....	160
8.2.1 Introduction .....	160
8.2.2 Testing the Underlying Assumptions for Multiple Regression.....	161
8.2.2.1 Linearity and Homoscedaticity .....	161
8.2.2.2 Normality .....	162
8.2.2.3 Multicollinearity .....	162
8.2.2.4 Independence of Residuals .....	162
8.2.2.5 Outlier Analysis .....	162
8.3 Hypotheses H1-H4 .....	163
8.4 Hypotheses H5-H6.....	167
8.5 Hypothesis 7 .....	170
8.6 Hypotheses H8-H12 .....	171

8.7 Hypothesis H13 .....	175
8.8 Testing the Mediating Effect of Knowledge Availability and Codifiability .....	177
8.9 Results of the Hypotheses Test.....	179
8.10 Chapter Summary .....	184
<b>CHAPTER 9. DISCUSSION AND CONCLUSIONS .....</b>	<b>186</b>
9.1 Introduction.....	186
9.2 Summary of the Main Findings .....	186
9.3 Discussion of the Survey Findings .....	188
9.3.1 Research Question 1 Part1: Hypotheses H1-H4 .....	188
9.3.2 Research Question 1 Part 2: Hypotheses H8-H11 .....	193
9.3.3 Research Question 1 Part 3: Hypothesis H12 .....	194
9.3.4 Research Question 2: Hypotheses H5-H7 .....	195
9.3.5 Research Question 3: Hypothesis H13.....	196
9.4 The Contribution to Academic Research.....	196
9.4.1 Academic Research Contribution 1.....	197
9.4.2 Academic Research Contribution 2.....	198
9.4.3 Academic Research Contribution 3.....	198
9.4.4 Academic Research Contribution 4.....	200
9.4.5 Academic Research Contribution 5.....	201
9.4.6 Academic Research Contribution 6.....	201
9.5 The Managerial Contribution .....	202
9.6 Limitations of the Study .....	204
9.7 Areas for Future Research .....	205
<b>REFERENCES.....</b>	<b>208</b>
<b>APPENDICES.....</b>	<b>229</b>
Appendix (I): Cover Letter for the Research Ethics Committee.....	229
Appendix (II): Main Questionnaire.....	230
Appendix (III): The Ethics Committee Approval.....	238
Appendix (IV): The Reminder Letter .....	239
Appendix (V): Codebook.....	240

Appendix (VI): Descriptive Statistics for All the Variables.....	243
Appendix (VII): Knowledge Applicability Scale.....	244
Appendix (VIII): Organisational Performance Scale.....	247
Appendix (IX): Mann-Whitney test.....	249
Appendix (X): Cook's Distance values of the predictors of Knowledge Availability vs. Adoption and Systemisation.....	250
Appendix (XI): Centered leverage values of the predictors of Knowledge Availability vs. Adoption and Systemisation.....	251
Appendix (XII): Cook's Distance values of the predictors of Knowledge Codifiability vs. Standardisation and Articulation.....	252
Appendix (XIII): Centred leverage values of the predictors of Knowledge Codifiability vs. Standardisation and Articulation.....	253
Appendix (XIV): Cook's Distance values of the predictors of Performance vs. Knowledge Management Styles.....	254
Appendix (XV): Centered leverage values of the predictors of Performance vs. Knowledge Management Styles.....	255
Appendix (XVI): Significant Relationships in Regression Models.....	256



## LIST OF TABLES

Table (1.1): A short Survey of KM Concept in the Literature from 1980-2002.....	6
Table (3.1): An effect of the four KM Styles on K-Space Dimensions . ....	73
Table (4.1): Condenses Procedures for Precision Improvement of Collected Data.....	89
Table (4.2): Comparative Information about three Methods for Collecting Data.....	95
Table (5.1): Five Knowledge Enablers and the Knowledge Elements.....	103
Table (5.2): Knowledge Functions for Individual, Group and Whole organisation.....	109
Table (5.3): Items Measuring Adoption Knowledge Management Style.....	115
Table (5.4): Items Measuring Systemisation Knowledge Management Style .....	116
Table (5.5): Items Measuring Standardisation Knowledge Management Style .....	116
Table (5.6): Items Measuring Articulation Knowledge Management Style.....	117
Table (5.7): Items Measuring Knowledge Availability .....	118
Table (5.8): Items Measuring Knowledge Applicability .....	118
Table (5.9): Items Measuring Knowledge Codification .....	119
Table (5.10): Items Measuring Organisational Performance .....	119
Table (5.11): Items Measuring the Absorptive Capacity.....	119
Table (6.1): Reasons for Conducting a Pilot Study.....	123
Table (6.2): Demographic Data for the Pilot Study.....	128
Table (6.3): Survey Items and their Relationship to the Measure of Interest.....	129
Table (6.4): Descriptive Analysis for the Pilot Study.....	130
Table (6.5): Internal Reliabilities for the Scales in the Pilot Study .....	132
Table (6.6): Correlation Matrix for Adoption Scale.....	133
Table (6.7): Correlation Matrix for Systemisation Scale.....	133
Table (6.8): Correlation Matrix for Standardisation Scale .....	133
Table (6.9): Correlation Matrix for Articulation Scale.....	134
Table (6.10): Correlation Matrix for Knowledge Availability to Individuals .....	134
Table (6.11): Correlation Matrix for Knowledge Availability to Departments.....	135
Table (6.12): Correlation Matrix for Knowledge Availability to the Whole Organisation .....	135
Table (6.13): Correlation Matrix for Knowledge Application Scale.....	135
Table (6.14): Correlation Matrix for Performance Scale.....	136
Table (6.15): Correlation Matrix for Absorptive Capacity Scale .....	136

Table (6.16): Knowledge Management Styles Average Correlation within the Scale Vs. Average Correlation Between the Scales .....	137
Table (6.17): Applicability and Absorption Capacity Average Correlation within the Scale Vs. Average Correlation Between the Scales Correlation .....	137
Table (6.18): Agglomeration Schedule for the Four Knowledge Management Styles Items.....	138
Table (7.1): Respondent Characteristics.....	144
Table (7.2): Demographic Data for the Main survey .....	146
Table (7.3): Results of Factor Analysis for the Knowledge Applicability Scale .....	148
Table (7.4): Results of Factor Analysis for the Organisational Performance Scale.....	149
Table (7.5): Loading factor of Knowledge Availability .....	150
Table (7.6): Loading factor of the Items of the Four Knowledge Management Styles .....	151
Table (7.7): Goodness of Fit Index and the significance of Chi-square for the Knowledge Management Styles .....	152
Table (7.8): Inter-rater Reliability for all the Scales.....	153
Table (7.9): Internal Reliability for all the Scales in the Main Study.....	154
Table (8.1): All Types of Analyses use in each Phase in the Framework .....	159
Table (8.2): All Separate Analyses use to Test the Rest of the Hypotheses.....	160
Table (8.3): Collinearity Statistics: Adoption and Systemisation vs. Knowledge Availability .....	164
Table (8.4): Results of Multiple Regression Analysis for Adoption and Systemisation vs. Knowledge Availability .....	165
Table (8.5): Collinearity Statistics: Standardisation and Articulation vs. Knowledge Codifiability .....	166
Table (8.6): Results of Multiple Regression Analysis for Standardisation and Articulation vs. Knowledge Codifiability .....	167
Table (8.7): Collinearity Statistics: knowledge Availability and Knowledge Codifiability vs. Organisational Performance .....	168
Table (8.8): Results of Multiple Regression Analysis for Knowledge Availability and Knowledge Codifiability vs. Organisational Performance .....	168
Table (8.9): Moderating Effect of Knowledge Applicability part 1 .....	169
Table (8.10): Moderating Effect of Knowledge Applicability part 2.....	170

Table(8.11): Collinearity Statistics: Knowledge Management Styles vs. Organisational Performance.....	172
Table (8.12): Results of Multiple Regression Analysis for Organisational Performance vs. Knowledge Management Styles .....	173
Table (8.13): Box's M Test for the four Knowledge Management Styles in term of Industry type Effect.....	176
Table (8.14): KMO and Bartlett's Test for the Four Knowledge Management Styles .....	176
Table (8.15): Industry type and the four Knowledge Management Styles.....	177
Table (8.16): Mediating Analysis Result (Beta values).....	178
Table (9.1): A summary of the Research Hypotheses.....	186
Table (VII.1): Correlation Matrix for the Knowledge Applicability Scale.....	244
Table (VII.2): KMO and Bartlett's test for the Knowledge Applicability Scale.....	244
Table (VIII.1): Correlation Matrix for the organisational Performance Scale.....	247
Table (VIII.2): KMO and Bartlett's for the Organisational Performance.....	247
Table (VIII.3): Anti-image Correlation of Organisational Performance Scale.....	247

## LIST OF FIGURES

Figure (1.1): Represents the Survey Result in Table 1.1 .....	6
Figure (1.2): Basic Model for the Organisational Performance .....	12
Figure (1.3): Knowledge Creation Mediates the Relationship between Knowledge Management Styles and Organisational Performance. ....	15
Figure (2.1): Nonaka Four Modes of Knowledge Conversion .....	49
Figure (2.2): Dimensions of I-Space .....	55
Figure (3.1): K-Space .....	62
Figure (3.2): K-Space Showing the Four Planes on Cube.....	68
Figure (3.3): Knowledge Enabling Cycles in K-Space .....	69
Figure (3.4): The Adoption Force.....	69
Figure (3.5): The Standardisation Force .....	70
Figure (3.6): The Systemisation Force .....	71
Figure( 3.7): The Articulation Force .....	72
Figure (3.8) Framework Depicting the Relationship between the KMSs and Knowledge Creation .....	74
Figure (3.9):The Integrative Research Framework .....	78
Figure (4.1): The Concept of Knowledge Availability.....	87
Figure (5.1): Steps Used to Develop the Scales .....	120
Figure (6.1): Pilot Steps.....	124
Figure (8.1): The two Phases of the Analysis of the Framework in Figure 3.9.....	159
Figure (8.2): Scatterplot: Adoption and Systemisation vs. Knowledge Availability ...	163
Figure (8.3): Scatterplot: Knowledge Management Styles vs. Organisational Performance.....	171
Figure (VII.1): Screen Plot for the Knowledge Applicability Scale.....	246
Figure (VIII.1): Screen Plot for the Organisational Performance Scale .....	248

## ACRONYMS

AC	Absorptive capacity
CKO	Chief Knowledge Officer
CRCC	Create the Right Context Cycle
GLKC	Globalise Local Knowledge Cycle
IKVC	Instill Knowledge Vision Cycle
I-Space	Information Space
KC	Knowledge creation
KM	Knowledge management
KMS	Knowledge Management Style
K-Space	Knowledge Space
MANOVA	Multiple Analysis of Variance
MCC	Manage Conversations Cycle
MKAC	Mobilise Knowledge Activists Cycle
OECD	Organisation for Economic Co-operation and Development
R&D	Research and development
SECI	Nonaka's SECI Model
SME	Small and Medium Enterprise